

East Contra Costa County Habitat Conservation Plan Association

HCPA Coordination Group Meeting

Thursday, July 18, 2002
1 p.m. to 3 p.m.

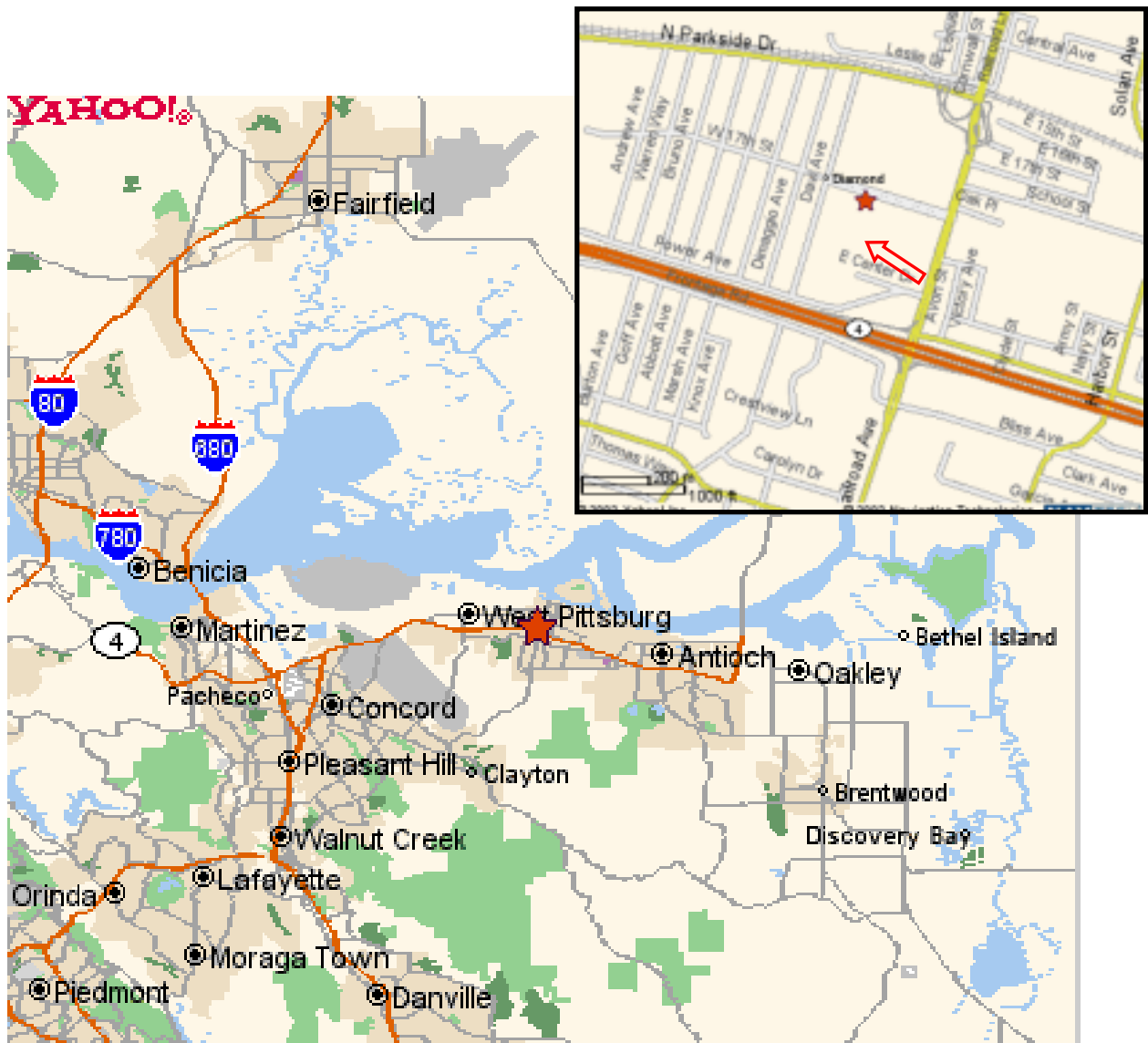
City of Pittsburg Council Chambers
65 Civic Drive in Pittsburg, 3rd Floor
(see map on reverse)

Agenda

- 12:00 *Larger scale maps showing results of the Biological Resources Inventory will be available one hour before the meeting for review. Additional review opportunities may be arranged by contacting staff.*
- 1:00 Introductions. Review contents of meeting packet.
- 1:05 Review and approve Draft Meeting Record of the June 18, Coordination Group meeting.
- 1:10 How will the Draft Biological Resources Inventory and other plan components come together to form the HCP—Part 2: Presentation and Discussion (John Kopchik and David Zippin).
- 1:35 Map-based vs. process-based HCPs: implications, advantages and disadvantages of alternative approaches (memo attached)
- 1:50 Discussion of the Draft Chapter 4 of the HCP: Land Use (distributed at June meeting)
- 2:00 Continued discussion of Biological Resources Inventory (Chapter 3 of the HCP), with consideration of the following additional items:
- 1st meeting report from Science Advisory Panel (attached)
 - Jones and Stokes' recommendations for addressing these suggestions
 - Recommendation on "No-Take" Species (memo attached)
 - Report on augmentations to the species sightings database
- 2:20 Introduction to analysis methods that will be used to prepare the HCP: modeling habitat for covered species (memo attached).
- 2:55 Confirm upcoming meeting dates and review upcoming topics. Upcoming meetings are scheduled as follows for the City of Pittsburg Council Chambers:
Thursday, August 15, 1 p.m. to 3 p.m.
Thursday, September 19, 1 p.m. to 3 p.m. (tentative)
- 2:55 Public comment.
- 3:00 Adjourn.

Times are approximate. If you have questions about this agenda or desire additional meeting materials, you may contact John Kopchik of the Contra Costa County Community Development Department at 925-335-1227.

Map and Directions to Pittsburg City Hall 65 Civic Drive



Directions from I-680, Central County

- 1) Take Hwy 4 East toward Antioch/Stockton
- 2) Follow Hwy East over the hill (Willow Pass)
- 3) Exit Railroad Ave. (the 2nd exit after the hill)
- 4) At the end of the exit ramp, turn left on Railroad Ave.
- 5) Turn left at the second intersection, East Center Drive (signs for various city offices will also point you this way)
- 6) Immediately bear right into the large parking lot next to City Hall
- 7) Meeting is on the 3rd floor

Directions from Antioch and points east

- 1) Take Hwy 4 West toward Martinez/Richmond
- 2) Exit Railroad Ave.
- 3) At the end of the exit ramp, turn right on Railroad Ave.
- 4) Turn left at the next intersection, East Center Drive (signs for various city offices will also point you this way)
- 5) Immediately bear right into the large parking lot next to City Hall
- 6) Meeting is on the 3rd floor

DRAFT MEETING RECORD

East Contra Costa County Habitat Conservation Plan Association (HCPA) Coordination Group Meeting

Tuesday, June 18, 2002
1 p.m. to 3 p.m.

City of Pittsburg Council Chambers

- 1:00 Welcome and introductions.** Meeting attendees introduced themselves. Coordination Group members in attendance were:

Seth Adams, Save Mount Diablo	Jim Gwerder, CCC Citizens Land Alliance
Bradley Brownlow, Morrison & Foerster	Barry Hand, City of Oakley
Paul Cylinder, Jones & Stokes	Mike Daley, Sierra Club Bay Chapter
Joel Summerhill, Mt. Diablo Audubon	Kathy Leighton, Byron MAC
Dave Dolter, The Seeno Companies	Fran Garland, Contra Costa Water District
Peter Rauch, CA Native Plant Society	Jeremy Graves, City of Clayton
Mike Vukelich, CCC Farm Bureau	Kerri Watt, Shea Homes
John Slaymaker, Greenbelt Alliance	Nancy Thomas, CCRCD

Other attendees included John Hopkins, Institute for Ecological Health.

- 1:05 Review and approve Draft Meeting Record of the May 17, 2002 Coordination Group meeting.** Mike Daley and John Slaymaker indicated that the minutes should reflect that they were in attendance on May 17. With that change, the meeting record was approved.
- 1:10 Update on actions taken by the HCPA Executive Governing Committee on May 23**
- Approval of Mission Statement and Coordination Group Operating Procedures. Staff will include a copy of the final mission statement in the next packet.
 - Invitation to Byron Municipal Advisory Committee rep. to join Coordination Group. The group welcomed Kathy Leighton.
 - Change to HCPA Planning Area to include Clayton Sphere of Influence. New map will be provided.
- 1:20 Update on first meeting of the Science Advisory Panel held May 29.** Staff reported on the meeting and stated that the Science Panel facilitator, Erica Fleishman, had indicated that a report on that meeting would be available in early July. Staff agreed to distribute that report to the Coordination Group when it was available.
- 1:30 Presentation on the proposed approach to wetlands conservation and permitting** (Paul Cylinder, Jones and Stokes). Paul Cylinder explained the proposed approach. That approach was summarized in a flow chart in the meeting packet.
- 2:00 How will the Draft Biological Resources Inventory and other plan components come together to form the HCP?** Presentation and Discussion (John Kopchik and David Zippin). John Kopchik and David Zippin presented a table summarizing key upcoming decisions and the relationship of those decisions the Biological Resources Inventory.

- 2:15 Overview and discussion of Draft Biological Resources Inventory** (Chapter 3 of the HCP) (distributed at the 5/17/02 meeting of the Coordination Group). David Zippin briefly outlined the contents of the draft Biological Resources Inventory. Coordination Group members had a number of comments. Given that the discussion would need to extend to future meetings when the Science Panel meeting report would be available, John Kopchik indicated he would record primary comments received from individual members to serve as a starting point for the future. Primary comments received from individual members were the following:
- Inventory should include more or all of the pre-existing data on biological resources (e.g., species sightings beyond those in the State's Natural Diversity Database)
 - More information on how habitat-species relationships will factor in to analysis would be helpful; hard to assess the resources inventory without knowing this
 - More ground-truthing
 - "CEQA species" cannot be covered with biological preserves designed to support only "covered species" (this was accompanied by a long explanation of the difference between "CEQA" and "covered" species ("CEQA species" are those that are not protected by endangered species acts, but may have some significance in the policies of local governments and therefore trigger some mitigation requirements under CEQA)(coverage of "CEQA species" has not been proposed for this HCP)
 - Desire to see detailed maps (staff offered to arrange for Coordination Group members to review the detailed inventory maps for the hour prior to the next meeting
- 2:45 Continue to review Draft Covered Activities List.** Not addressed.
- 2:55 Confirm upcoming meeting dates and review upcoming topics.** Upcoming meetings are scheduled as follows for the City of Pittsburg Council Chambers:
- Thursday, July 18, 1 p.m. to 3 p.m.
 - Thursday, August 15, 1 p.m. to 3 p.m.
- 2:55 Public comment.** None.
- 3:00 Adjourn.**

Draft Mission Statement for the HCPA, 5/23/02

(showing revisions suggested by Coordination Group on 4/18/02 with red underline and ~~strikeout~~ and changes suggested on 5/17/02 in blue shaded underline and ~~strikeout~~)

The East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan will provide comprehensive species, wetlands and ecosystem conservation and contribute to recovery of endangered species ~~by balancing open space, habitat, agriculture, and urban development~~ within East Contra Costa County, while:

- balancing open space, habitat, agriculture, and urban development;
- reducing the cost and increasing the clarity and consistency of federal and state permitting by (remove "bullet" symbol in next line and move "consolidating ..." up to follow "by")
- consolidating and streamlining these processes into one, locally-controlled plan,
- encouraging, where appropriate, the multiple use of protected areas, including recreation and agriculture,
- sharing the costs and benefits of the habitat conservation plan ~~process and implementation among participating agencies~~ as widely and equitably as possible, and
- protecting the rights of private property owners, ~~and~~
- ~~contributing to the conservation and recovery of endangered species and their habitats.~~

Final Mission Statement for the HCPA, approved by EGC on 5/23/02

(with all above changes incorporated)

The East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan will provide comprehensive species, wetlands and ecosystem conservation and contribute to recovery of endangered species within East Contra Costa County, while:

- balancing open space, habitat, agriculture, and urban development;
- reducing the cost and increasing the clarity and consistency of federal and state permitting by consolidating and streamlining these processes into one, locally-controlled plan,
- encouraging, where appropriate, the multiple use of protected areas, including recreation and agriculture,
- sharing the costs and benefits of the habitat conservation plan as widely and equitably as possible, and
- protecting the rights of private property owners.



Memorandum

Date: June 28, 2002

To: East Contra Costa County HCP Association
C/o John Kopchik

cc:

From: David Zippin

Subject: **Map-Based vs. Process-Based Plan**

One of the key decisions to be made in this process is how to structure the HCP/NCCP. One of the most fundamental choices faced by applicants is whether to develop a map-based plan or a process-based plan. This memorandum explains these two types of plans and outlines the benefits and drawbacks of each approach.

BACKGROUND

Pure Map-Based Approach: A map-based plan is the easiest to understand but often the hardest to develop. In such a plan, the preserves to be created are drawn clearly on map. The map designations determine the application of regulations, fees, land acquisition, restoration, or other elements of the plan. Because all landowners must agree to the designation placed on their lands, purely map-based plans (otherwise known as “hard boundary” plans) are difficult to develop on a large scale and are usually used for HCPs with a single property owner.

“Fuzzy” Map Approach (Hybrid Approach A): Another option is to designate on a map broad areas in which preserves are to be assembled. Land within this area is purchased in fee title or as conservation easements from willing sellers. Because not all of the land within the mapped preserve areas can be purchased (i.e., not every landowner will want to sell), the preserves zones are drawn to be larger than required to mitigate for project impacts. In order for the preserves to adequately mitigate project impacts, minimum requirements are set regarding elements such as total preserve size, configuration, and habitat composition. Such plans have components of both map-based and process-based HCPs, because lines are drawn on a map but there is flexibility in how the preserves are assembled. Examples of hybrid HCPs are the San Diego County Multi-Species Conservation Plan (both an HCP and NCCP), and the Natomas Basin HCP in Sacramento and Sutter Counties.

“Relative Value” Map Approach (Hybrid Approach B): HCPs can alternatively include a map that broadly categorizes areas for mitigation or land acquisition by their conservation value. This approach has less geographic specificity than Hybrid Approach A. A variety of policies

may be established in the plan relating to this map. For instance, mitigation fees or ratios for an area may vary depending on map categories. The number of conservation credits available to sell per acre can also be related to the map. A map could also identify areas with specific mitigation requirements (e.g., pre-construction surveys). The Kern County Valley Floor HCP (still in progress) proposed such a generalized map-based approach. In that plan, areas would be scored high, medium, and low for conservation value and assigned conservation credits accordingly (i.e., high value areas would receive more conservation credits per acre than low value areas). To receive a permit in the HCP, the project proponent would need to provide or fund the purchase of conservation credits in an amount proportional to amount of credits their project would destroy. Sellers of conservation credits would receive more per acre if their property was high value and less per acre if their property was low value.

The Balcones Canyonlands Conservation Plan in central Texas (a regional HCP) took a similar approach by designating zones on a map of either known occupied habitat of a key covered species (based on field surveys), possible habitat (no surveys conducted but habitat was suitable), or areas not considered to be habitat. Mitigation fees were determined based on the proportion of a parcel within each zone.

Process-Based Approach: A purely process-based plan has no map of where preserves will be established or other mitigation accomplished. Instead, the plan outlines a detailed process by which reserves are assembled according to clear criteria. The amount of flexibility in a process-based plan depends on the flexibility of the preserve assembly criteria. For example, criteria could be developed that essentially mandate the acquisition of certain areas within the plan area because of their critical function or unique biological resources. In this way, a process-based plan can provide a degree of certainty in the outcome close to that of a map-based plan without the controversy associated with lines on a map. Alternatively, criteria could be included that specify the general area in which preserves should be assembled (e.g., “grassland habitat north of Hwy X and east of Y City Limits”). An example of a purely process-based HCP is the San Joaquin County Multi-Species Open Space and Conservation Plan.

There are many ways to apply the principles of map-based and process-based approaches to an HCP. For example, maps could be applied to habitat areas or development areas but not both. Alternatively, maps could be applied in preserve areas where acquiring certain habitat is critical to the success of the plan, but not in other areas. In other areas there may be more flexibility in meeting the HCP goals. As mentioned previously, maps may also designate zones within an HCP area in which different mitigation ratios, fees, credits, or criteria apply.

Benefits and Drawbacks

Jones & Stokes will be developing up to four alternative conservation strategies for review by the HCPA. One of these strategies will be the “no take” alternative, as required by the U.S. Fish and Wildlife Service. The other three alternatives will differ in terms of their level of

conservation, or they could differ in terms of the structure of the conservation strategy (e.g., map-based or process-based). A purely map-based HCP is probably not practical for this project because of its large scale. However, it would be appropriate for the plan to be either purely policy-based or a combination of policy-based and map-based. **We are requesting direction from the HCPA as to their preference of a hybrid approach (i.e., contains some map components) versus a purely policy-based approach.** If there is no preference, we will develop alternative conservation strategies with a hybrid approach because choosing one approach is more cost effective. A hybrid approach can be more easily converted to a purely policy-based approach than vice-versa. The benefits and drawbacks of each approach are presented in Table 1.

Table 1. Benefits and Drawbacks to Map-Based vs. Process-Based HCPs

Type of HCP	Benefits	Drawbacks
Hybrid HCP (some maps)	<ul style="list-style-type: none">• Greater certainty for all concerned in terms of how the plan will be implemented• May have to provide less mitigation overall due to higher certainty of locations• Potential for fewer pre-construction survey requirements	<ul style="list-style-type: none">• May inflate land prices within designated preserve areas if not enough “extra” land is available• Some landowners may see this as added regulation (even though plan is voluntary) or unfair manipulation of land prices• May require higher level of HCP baseline data within preserve boundaries to demonstrate they meet the biological goals of the HCP• Less flexibility to respond to changed circumstances, be these biological or economic¹• Some stakeholders may not accept this approach for political reasons
Process-only HCP	<ul style="list-style-type: none">• Avoids controversy associated with lines on a map• Typically requires lower level of HCP baseline data in preserve areas because preserve lands can be assessed in detail as they are purchased from willing sellers• More flexibility in implementing HCP	<ul style="list-style-type: none">• May have to provide additional mitigation to offset uncertainty in location of final preserve system• Potential for greater pre-construction survey requirements• Less certainty in the outcome of the plan

Participants in the HCPA process can no doubt suggest other advantages and disadvantages and are invited to do so.

¹ It would be more difficult to implement such a plan on purely “pay-as-you-go basis”; if less development occurred than was predicted; matching available funding to acquisition commitments could be more challenging; the Kern County approach is an exception, allowing market forces to play a role, though guiding that market with incentives.

Draft Meeting Record for the 1st Meeting of the HCPA Science Advisory Panel

Staff have prepared this cover page to the attached report prepared by the Science Advisory Panel to compile a record of other aspects of the meeting commonly included in HCPA meeting records.

Date of meeting: May 29, 2002

Time of meeting: 11 a.m. to 3 p.m.

Location: EBRPD's Lake Temescal Recreation Area, Oakland

Attendees:

Science Advisory Panel: Lynn Huntsinger (chair), Barbara Ertter, Alan Launer, Susan Orloff, Bruce Pavlik, Brian Walton, Erica Fleishman (facilitator)

Staff: John Kopchik, Dennis McCormac, Ed West (consultant), Rebecca Young (note-taker), David Zippin (consultant)

Other attendees: Steve Bobzien, Peter Rauch, John Slaymaker

Summary of meeting and findings made by the Science Panel at the meeting on the questions posed by the HCPA Executive Governing Committee:

Please see attached document prepared by the Science Advisory Panel

Public comments received at the meeting: Two participants offered detailed comments during the formal public comment period. One participant criticized the omission of several species from the proposed covered species list. Another participant commented that fine scale physical features were a critical omission from the data, urged the Science Panel to recognize that competing interests would be shaping the plan, and noted the importance of species that required large amounts of habitat to persist.

MEETING REPORT

29 May 2002 Science Advisory Panel Meeting East Contra Costa County Habitat Conservation Plan / Natural Communities Conservation Plan

Prepared and reviewed by the Science Advisory Panel: Lynn Huntsinger (chair), Barbara Ertter, Alan Launer, Susan Orloff, Bruce Pavlik, Brian Walton, Erica Fleishman (facilitator)

Introduction

This report serves as the meeting record for the first Science Advisory Panel (Panel) meeting for the East Contra Costa County Habitat Conservation Plan / Natural Communities Conservation Plan (HCP / NCCP). The report was prepared by the chair and facilitator of the Panel. The chair ensured that the scientific views of the Panel were articulated clearly. The facilitator served in an editorial capacity to ensure that the report was clear and responded explicitly to the questions posed by the Habitat Conservation Plan Association (HCPA) Team. All Panel members have had the opportunity to review this document.

The 29 May Panel meeting began at 11:00 A.M. In addition to the Panel members, attendees included John Kopchik (Contra Costa County), David Zippin (Jones & Stokes), and Ed West (Jones & Stokes). Also present were Rebecca Young (note-taker), Dennis McCormac (Contra Costa Water District), and three members of the public.

Following general introductions, Fleishman described the role of the facilitator and presented the objectives for the meeting. She outlined the good-faith assumptions under which Panel meetings will be conducted and meeting reports compiled, and described the roles and scope of work of the Panel chair and Panel members. Panel members were asked to list and briefly explain any existing collaborations, defined as financial interests and professional relationships related to land-use matters in eastern Contra Costa County. Fleishman also reviewed the timetable and objectives for each of the four anticipated Panel meetings, as well as the process by which meeting records would be completed.

John Kopchik then presented an overview of the East Contra Costa County HCP / NCCP. He introduced the groups participating in the HCP, the circumstances that prompted the HCP, and prior efforts and formation of the HCPA. He also described permits and mitigation, the expected benefits of preparing an HCP, and the public involvement process and general timetable for the East Contra Costa County HCP.

Next, David Zippin explained the regulatory background and HCP / NCCP process for the East Contra Costa County HCP / NCCP. In addition, Zippin described the overall approach for the HCP (e.g., integration of Endangered Species Act and Clean Water Act compliance; keeping within schedule and budget constraints; early, frequent, and active involvement of regulatory agencies, stakeholders, and independent scientists) and its structure (i.e., map-based, policy-based, hybrid). He outlined the HCP / NCCP document, including preliminary covered activities,

physical and biological resources, and land use, and presented the broad conservation strategy for the HCP.

Finally, Ed West reviewed the process used to determine which species would be covered by the HCP. To be covered, a species had to meet the following four criteria:

1. Range. Based on credible evidence, the species must be known to occur or be likely to occur within the inventory area.
2. Status. The species must currently be listed under the federal Endangered Species Act or the California Endangered Species Act, or be likely to become listed within the 30-year anticipated term of the permit.
3. Impact. The species will be or likely will be adversely affected by covered activities.
4. Data. Sufficient data exists on the species' life history, habitat requirements, and occurrence in the inventory area to adequately evaluate impact to the species and to develop conservation measures to mitigate these impacts to regulatory standards.

Most of the remainder of the meeting was spent discussing questions posed by the HCPA Team to the Panel. Following a brief public comment period, the meeting adjourned at 3:00 P.M.

Response to questions posed by the HCPA Team

The HCPA Team posed five questions to the Panel at its first meeting. The questions were developed by the HCPA Team, Jones & Stokes, and the Panel facilitator in cooperation with the HCPA Coordination Group. The following responses represent the overall consensus of the Panel.

1. Given the limitations in data availability, funding, and time (e.g., the minimum mapping unit, and data on land cover, soils, streams, watersheds, topography, NDDB records), is the land cover classification and the methods used to map land cover types sufficient to assess impacts of covered activities, identify conservation areas and actions, and conduct the conservation planning effort?

In general, it would be useful if the land-cover types were linked to covered species. For example, why were these land-cover types mapped, and how are the land-cover types relevant to the covered species?

The definition of oak savanna—grassland with a tree canopy cover of 5 to 10%—seems to be a narrow range of canopy cover values. As currently defined, this land cover type is quite uncommon in the planning area (3%). Another reference defines oak savanna as grassland with a tree canopy cover of 30% or less (Allen-Diaz, B.H., J.W. Bartolome, and M.P. McClaran. 1999. California oak savanna. Chapter 20 in R.C. Anderson, J.S. Fralish, and J.M. Baskin, editors. Savannas, barrens, and rock outcrop plant communities of North America. Cambridge University Press. 470 pages.). It would be helpful if the description of land-cover types clarified why this

particular classification of oak savanna was used. It also might be helpful if the classification were linked to descriptions of suitable habitat for covered species.

The definition of annual grassland gives the impression that very few native bunchgrasses remain in the planning area. Native bunchgrasses do occur in the planning area, although their distributions are highly scattered. In addition, the draft of Chapter 3 does not define native grassland. What proportion of native versus non-native species would render a grassland ‘annual’ versus ‘native’?

Some of the land-cover types are man-made as opposed to naturally occurring. For example, ponds could be either natural water bodies or man-made stock ponds. It might be helpful if the land-cover maps and / or definitions identified land-cover types that require continued maintenance to persist. Further, it might be useful to specify which land-cover types are likely to change if there is a change in land use—especially if those changes in land cover are likely to affect covered species.

Ideally, the land cover map might discriminate among agricultural types (e.g., dryland farming versus irrigated crops such as alfalfa). Different agricultural crops and irrigation methods may support different covered species. It also could be valuable to distinguish between perennial and ephemeral streams.

A limitation of the mapping procedures was that the minimum mapping unit was one acre [ponds smaller than one acre were mapped if they could be discerned on the aerial photographs]. Thus, land-cover types smaller than one acre were subsumed into other land-cover types that could be mapped using a 1-acre or 10-acre unit. Several land-cover types that could not be mapped may be important for covered species. Examples include seeps, springs, vernal pools, rock outcrops, and serpentine soils. Such ‘point features’ should be identified, perhaps as a separate map layer developed using field notes from aerial and / or ground surveys and personal communication with knowledgeable specialists, if the cost and labor involved is not prohibitive.

The inability to distinguish mixed evergreen forest from oak woodland is unlikely to hinder development of the HCP. Because they are largely on protected land, these two land-cover types do not tend to occur in the areas most likely to be developed. It probably would be more useful to invest available resources in distinguishing between annual and native grasslands. Grasslands (along with alkali flats) are more likely than woodlands to be adversely affected by the covered activities.

2. Are the limitations of the methods for land cover type mapping with respect to the conservation planning effort adequately discussed?

Discussion of the inability to map land-cover types smaller than one acre that may be relevant to covered species should be expanded. The existing map does not identify land-cover types such as rock outcrops or native grasslands. Therefore, the mapping leaves some uncertainties regarding the occurrence and abundance of important resources for some covered species. The greatest need for discussion concerns the inability to differentiate between native grasslands and annual grasslands.

The limitations of the methods for land cover type mapping may vary by taxonomic group. The minimum mapping unit is adequate for birds, and well may be adequate for mammals, but possibly is too large for amphibians and other taxonomic groups with small home ranges.

3. Do the profiles of each proposed covered species adequately catalogue and summarize the ecological literature on this species most relevant to the East Contra County HCP/NCCP? (note: the profiles are not intended to be treatises on each covered species)

[Note: if the profiles did not adequately review the relevant ecological literature, panelists were asked to please provide citations of missing data relevant to this effort and copies or original papers, if possible.]

The adequacy of the profiles must be assessed in light of their goal. The profiles are intended to provide baseline information that can be used to identify impacts of covered activities, and to develop appropriate conservation strategies.

It would be helpful if the profile for each proposed covered species were tied more closely to the species' ecology, status, and threats in eastern Contra Costa County—i.e., why the plant or animal has been placed on the preliminary list of covered species. The profiles might also address the criteria used to determine whether the species would be covered by the HCP. If the profiles specify what data currently exist on the species, they could be useful if the HCP is amended. The profiles could serve as a record of the state of knowledge regarding the species during HCP development against which future changes in the status of the species could be assessed and tracked.

Several Panel members expressed an interest in editing and / or amending the profiles for certain species. In addition, Panel members indicated that they have ecological literature relevant to development of profiles and conservation strategies for certain species. Electronic copies of the profiles have been forwarded to Panel members. The facilitator will compile edited profiles, citations, and papers and forward those materials to the HCPA Team.

4. Did our covered species evaluation overlook any species whose survival or viability, either at the species level or in the inventory area, is likely to be significantly affected by the proposed activities?

A more comprehensive understanding of covered activities would make it easier to determine which species should be covered. Considerable development (and associated adverse impacts on species) can occur over a 30-year period. It is important to emphasize that increased human population density leads to greater recreational use that can have adverse impacts on species of concern.

Several species should be reconsidered for coverage.

In general, species of birds that overwinter in flat and rolling grasslands tend to be overlooked in HCPs because they do not nest in the planning area. Yet several recovering species of birds, including peregrine falcon (*Falco peregrinus*) and bald eagle (*Haliaeetus leucocephalus*), have

extensive territories. Peregrines occur in the planning area now, and bald eagles are highly likely to occur in the planning area within the next 30 years.

Short-eared owls (*Asio flammeus*) could be affected by large-scale (regional) factors or local factors. This species overwinters but does not nest in flat and rolling grasslands in eastern Contra Costa County. However, the species has undergone widespread population declines. Even in areas that are being managed appropriately for the species, population sizes may continue to decrease. Nonetheless, the species might benefit from being covered under the HCP. Contrary to preliminary assessment by the HCPA Team, short-eared owls well may be listed within the next 30 years.

Peregrine falcons will not be impacted directly by the covered activities but are highly likely to be affected indirectly; increases in human population density associated with development often lead to greater recreational use that can disrupt nesting birds. Thus, peregrine falcons might benefit from being covered under the HCP. Because the peregrine falcon is listed as endangered under the California Endangered Species Act, the HCP may be open to criticism if the species is not covered. At minimum, the species evaluation might include an explicit explanation why peregrine falcon is not covered.

Several species of plants with known historic occurrences in the planning area should be reevaluated: Ferris' and alkali milkvetch (*Astragalus tener*), Mount Diablo buckwheat (*Eriogonum truncatum*), rayless ragwort (*Senecio aphanactis*), and caper-fruited tropidocarpum (*Tropidocarpum capparideum*). The planning area covers the majority of the historic distributional range of these species, and the plants may occur on private property in the planning area that has not been surveyed. Another species that should be evaluated for coverage is *Erodium macrophyllum*. Although the latter plant was not on the initial list of 154 species evaluated for coverage, it is a rare native species, and is believed to have been found in the planning area recently.

Western pond turtle (*Clemmys marmorata*) and western spadefoot toad (*Scaphiophus hammondi*) should be reconsidered for coverage. California black rail (*Laterallus jamaicensis coturniculus*) and California horned lizard (*Phrynosoma coronatum frontale*) also may warrant coverage. The rail is listed as threatened by the state of California, and the lizard probably will be listed during the next several years.

Although none of the covered species should be removed from the covered species list, lower priority could be assigned to species that tend to occur upslope and / or mainly occur in areas that already are protected from development. For example, the majority of the range of Mount Diablo manzanita (*Arctostaphylos auriculata*) and Mount Diablo fairy lantern (*Calochortus pulchellus*), falls within lands that are already protected. The latter species are less likely to require conservation attention than species that do not occur on protected lands (e.g., species that occur on flat lands and sandy hills).

It also may be appropriate to prioritize species for coverage on the basis of the proportion of their distributional range contained within the planning area. If a species primarily occurs south of the planning area, it probably should be assigned a lower priority for conservation activities than a

species that largely is endemic to the planning area. For example, the planning area may represent the northern distributional limit of recurved larkspur (*Delphinium recurvatum*).

Sections on species evaluations in Chapter 3 could be expanded to address gradients of risk. The discussion might include an explicit acknowledgment that risk assessment is a complex discipline in its own right, and that formal, detailed risk assessments were not applied to determine which species would be covered by the HCP. For example, species evaluations did not consider geographic range and distribution (within versus outside of the planning area), the extent to which the species occurs on lands that already are protected from development, or the likelihood of development in the locations occupied by the species.

The Panel recognizes that it is extremely difficult for any two individuals to apply the same criteria in exactly the same way. There is no reason to believe that the criteria have not been applied appropriately to birds.

5. Have we appropriately applied the covered species criteria to generate the preliminary covered species lists?

On the whole, the covered species criteria appear to have been applied appropriately. As discussed above, there is some degree of concern regarding the geographic distribution of the species, the status of the land on which they occur, and the likelihood of future development and associated adverse impacts.

Rare species (especially plants) well may occur within the inventory area, but have not been recorded (e.g., due to inadequate survey effort or inaccessibility of private lands). In addition, it is possible that the planning area contains undescribed species of plants (five percent of the vascular plant species in California are believed to be undescribed). The latter species are likely to be rare, and may need to be treated on a case-by-case basis if they are not covered by the HCP. The regulatory agencies almost certainly will require some future surveys over the 30-year duration of the permit. Thus, there could be a benefit to providing coverage to taxa that are not currently listed as threatened or endangered, but are sufficiently rare that the covered activities pose a significant threat to their persistence.



Memorandum

Date: July 8, 2002

To: East Contra Costa County HCP Association Staff Committee and Coordination Group

cc:

From: David Zippin and Ed West

Subject: **Responses to Science Panel May 29 Meeting Report**

This memo summarizes the key points raised in the report of the Science Advisory Panel (Panel) at their first meeting on May 29, 2002. Each issue is addressed along with our recommendation and any cost implications. Issues are listed in the order in which they appear in the report, along with a reference number for each one.

Ref. #	Issue Raised by Panel	Response	Recommendation	Cost Implications
1	Land-cover types should be linked to covered species	We will add information in Chapter 3 that clarifies the link between land-cover types and covered species, including a matrix that illustrates which land-cover types provide habitat for each covered species. This is the basis for the species distribution models.	Distribute draft example models at next HCPA Coordination Group meeting (July 18) and at next Panel meeting (mid-Sept) as planned; incorporate species distribution models into all species profiles for Admin. Draft HCP/NCCP	None
2	The definition of oak savanna should be clarified	We agree that more clarification is needed regarding our definition of savanna (tree cover <10%). The Panel provided a reference in which California oak savannah is defined as tree canopy cover <30% (Allen-Diaz et al. 1999). One's distinction between woodland and savanna is somewhat arbitrary. In Australia, some define savannas as having a tree cover of less than 10% (Huntley and Walker 1982).	We will clarify the definition of oak savanna in the admin. Draft HCP/NCCP.	None

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Ref. #	Issue Raised by Panel	Response	Recommendation	Cost Implications
		In South America, they are defined as having <15% tree cover (Saramiento 1983). In fact, the word “savanna” was originally applied to treeless grasslands in South America (Archibold 1995). We chose 10% in order to distinguish areas of low tree density from surrounding pure grassland. We believe areas with low oak density are especially important for conservation because they are the transition zone between grassland and true oak woodland. This classification helps to satisfy the requirement of the NCCP Act to conserve areas of “high habitat diversity.”		
3	The treatment of native grassland should be clarified	Native grasslands will be added to Chapter 3 as a unique land-cover type but it will be made clear that it could not be mapped given the data limitations.	Incorporate recommended changes into Admin. Draft HCP/NCCP	None
4	Maps and/or definitions should identify land-cover types that require continued maintenance to persist	We cannot determine from air photos which ponds are natural and which are artificial and would therefore require continued maintenance. Even natural ponds may require “maintenance” to ensure their functioning for covered species (e.g., removing bull frogs or exotic fish to provide habitat for CA red-legged frog).	Expand the discussion of ponds and other aquatic land-cover types to clarify which types may require continued maintenance to persist. Incorporate into the Admin. Draft HCP/NCCP	None
5	Consider discriminating among types of agriculture land-cover types	We were able to distinguish between 4 types of agriculture: pasture, cropland, orchard, and vineyard. It is not possible to distinguish different types of cropland, orchards, or pasture from aerial photography without extensive ground truthing. The only reliable method would be to survey agricultural lands (approximately 34,000 acres), mapping on topographic maps or air photos. Agricultural land-cover types provide habitat for only 3 covered species: giant garter snake, Swainson’s hawk, and Western burrowing owl. The benefit of collecting these data is that agricultural lands would be more accurately mapped and current (crops have changed on some sites since the air photos were taken in 2000). However, the cost to gather these data must be weighed against the overall benefit to the plan. The higher resolution of agricultural land cover types is not likely to result in significant changes in covered species models.	We recommend no change to the current agricultural data.	The cost to gather, process, and digitize these data would be approximately \$17,000
6	Discriminate between	We agree that perennial streams are particularly important in the	We will add a discussion of the	None

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Ref. #	Issue Raised by Panel	Response	Recommendation	Cost Implications
	perennial and ephemeral streams	inventory area.	perennial streams in the inventory and distinguish them on figures 3-4 and 3-6 based on available data.	
7	Identify as points important small-scale features that could not be mapped, even if this can only be done by non-systematically mapping past field observations	We agree that small-scale features such as springs, seeps, small rock outcrops, caves, serpentine areas, and vernal pools are important to covered species. Maps of these features within the inventory area, particularly within the areas of impact, would greatly strengthen the HCP/NCCP. (Regarding rock outcrops, caves, and serpentine areas, we may have additional point location data from the Biodiversity effort that could augment the land cover data records for rock outcrop. Complete mapping of these features would require extensive ground surveys (these features are not distinguishable or identifiable on air photos) and access to private lands. Even with additional funding, we would not likely receive authorization to completely survey private lands. An alternative is to conduct surveys from publicly-accessible roads and vantage points to survey the area of impact. These data could be supplemented with new survey data from Antioch FUA 1 when it becomes available. Mapping in a non-systematic way from past field observations could be helpful for evaluating model assumptions and further validating the model results but, in our view, due to the limited, opportunistic nature of the data, it would not provide a cost-effective, repeatable, or useful addition to the dataset. Past field surveys occurred in protected areas, not in the potential areas of impact.	At a minimum, we will incorporate into the admin. draft HCP/NCCP a description of these small-scale features, their functions, and areas of known concentrations based on available data. Biodiversity data on rock outcrops, caves, and serpentine areas will also be evaluated and potentially included. We could also conduct surveys for small-scale features within the area of impact at an additional cost. If these surveys are not conducted, they could be required of applicants in order to quantify habitat impacts. Similarly, they could be required prior to land acquisition to verify the reserve's habitat types and quality.	No cost to update HCP/NCCP with descriptions; cost to conduct surveys of small-scale features in impact area = approximately \$15,000
8	No need to distinguish mixed evergreen forest	We agree that distinguishing between mixed evergreen forest and oak woodland is not necessary to identify impacts or develop conservation strategies. However, the distinction between these two vegetation types should be clarified in Chapter 3.	Add a new mixed evergreen forest land-cover type to Chapter 3 and clarify that it could not be distinguished on air photos. Incorporate into Admin. Draft HCP/NCCP	None
9	Expand discussion of how the inability to map land-cover types	We agree that the discussion of how the mapping limitations affects the analysis of covered species should be expanded.	An expanded discussion of this topic will be added to the admin. draft HCP/NCCP	None

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Ref. #	Issue Raised by Panel	Response	Recommendation	Cost Implications
	smaller than one acre is relevant to covered species			
10	Explain how the mapping limitations vary by taxonomic groups	We agree that the mapping limitations vary by taxonomic group. The limitations are more serious for plants, invertebrates, and some amphibians than for other groups. (See response to #7 for a suggested way to reduce these limitations).	An expanded discussion of this topic will be added to the admin. draft HCP/NCCP	None
11	Tie the species profiles more closely to the species' ecology, status, and threats in the inventory area	We agree that the species profiles would be improved by more closely tying them to the situation within the inventory area. However, in most cases, data specifically within the inventory area are lacking.	Observational data (e.g., Los Vaqueros surveys) and data generated by this project (e.g., species distribution models) will be added to the profiles in the admin. draft HCP/NCCP	None
12	Expand the profiles to address the criteria used to determine its covered status, particularly regarding data adequacy	We agree that the notes in Table 3-8 could be expanded to further explain the rationale behind which species were chosen as covered species.	A new section will be added to each species profile in the admin. draft HCP/NCCP expanding on the notes in Table 3-8.	None
Consider adding the following species to the covered species list:				
13	Peregrine falcon	This species meets all of the criteria, except impact. However, impact to the species is dependent on which activities are covered in the HCP/NCCP. The greatest potential impact to this species within the inventory area would come from wind farm expansion and recreational activities within existing or future preserves.	Do not include wind farms as a covered activity to avoid complicated impact analysis. Meet with FWS and EBRPD to discuss the potential for recreational activities to harm or harass peregrines under the ESA. If take may occur and coverage is needed in existing or future parks, include as a covered species.	\$7,500 if species is covered by HCP/NCCP
14	Bald eagle	The Bald Eagle is currently a rare winter visitor in Contra Costa County. Proposed expansion of Los Vaqueros Reservoir could result in an increase of the number of birds using this area. The	Do not include wind farms as a covered activity to avoid complicated impact analysis. Meet	\$7,500 if species is covered by HCP/NCCP

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Ref. #	Issue Raised by Panel	Response	Recommendation	Cost Implications
		greatest potential impact to this species within the inventory area would come from wind farm expansion and recreational activities around wintering areas.	with FWS, CDFG and CCWD to discuss the potential for recreational activities to harm or harass bald eagles under the ESA. If take may occur and coverage is needed in the Los Vaqueros watershed, include as a covered species.	
15	Short-eared owl	This species meets all 4 criteria for coverage listing but was classified as a 2 nd priority Bird Species of Special Concern by the BSSC Technical Advisory Committee. For this reason it was placed on our Priority 2 list. However, re-evaluation of available information showed that this species has shown marked population declines in the grasslands and northern marshes of the inventory area. Additionally, widespread declines in this species suggest it could be listed in the next 30 years.	Because the species meets all four criteria, and would likely be affected by covered activities, we recommend that it be included in the HCP/NCCP as a covered species.	\$7,500 if species is covered by HCP/NCCP
16	Ferris' milk vetch	Although not known to occur in Contra Costa County, suitable habitat exists on alkaline soils; if populations were found, they would have to be preserved.	Incorporate as a "no take" species in the HCP/NCCP (see memo dated 6-28-02)	None
17	Alkali milk vetch	This species is presumed extirpated from the inventory area. If any populations were found, they would be highly significant and should be preserved. Therefore, no impacts should be allowed on this species.	Incorporate as a "no take" species in the HCP/NCCP (see memo dated 6-28-02)	None
18	Mount Diablo buckwheat	This species is presumed extinct but historically occurred in the inventory area. If any populations were found, they would be highly significant and should be preserved. Therefore, no impacts should be allowed on this species.	Incorporate as a "no take" species in the HCP/NCCP (see memo dated 6-28-02)	None
19	Rayless ragwort	This species is on CNPS List 2. There are many records of the species in California, but many are historic. Only one record of this species exists in the inventory area, a collection from the 1930's from Black Diamond Mines Regional Park. The species meets the range criteria but does not meet the impact, status, or data criteria.	Because of a lack of data on this species and because the only known record is within a protected area, we do not recommend including it as a covered species or a "no take" species. For more	None

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Ref. #	Issue Raised by Panel	Response	Recommendation	Cost Implications
			detail, see the memo on additional evaluation species.	
20	Caper-fruited tropidocarpum	This species is presumed extinct but historically occurred in the inventory area. If any populations were found, they would be highly significant and should be preserved. Therefore, no impacts should be allowed on this species. See the memo regarding additional evaluation species for more details.	Incorporate as a "no take" species in the HCP/NCCP (see memo dated 6-28-02)	None
21	Round-leaved filaree (<i>Erodium macrophyllum</i>)	This species meets the criteria for range, impact, and data. Because of its widespread distribution in the Western United States, it is unlikely to be listed by the federal government. However, there is a potential for the species to be listed under the California Endangered Species Act during the term of the permit. Therefore, it also meets the status criteria. See the memo regarding additional evaluation species for more details.	Because the species meets all four criteria, we recommend that it be included in the HCP/NCCP as a covered species.	Cost to add as a covered species: \$3,000
22	Western pond turtle	This species meets all 4 criteria for coverage status and is declining throughout its range. It was petitioned for listing in 1992, but denied due to its widespread distribution in the western states. However, many populations in California, Oregon and Washington are significantly declining and threatened with extirpation. The species would be affected by covered activities. There is a good possibility that this species could be listed within 30 years.	We recommend that this species be included in the HCP/NCCP as a covered species.	\$7,500 if species is covered by HCP/NCCP
23	Western spadefoot toad	This species meets all 4 criteria for coverage status. It has sustained significant population reductions in the Central Valley over the last 15-20 years. Covered activities could potentially impact this species. Continued loss of habitat throughout its range suggests that this species could be petitioned for listing within 30 years.	Because the species meets all four criteria, and could possibly benefit from coverage, we recommend that it be included in the HCP/NCCP as a covered species.	\$7,500 if species is covered by HCP/NCCP
24	California black rail	California black rail occur in coastal salt marsh, diked salt marsh, and brackish and freshwater marsh along the fringes of San Francisco Bay. These habitat are not included within the inventory area.	No change	None
25	California horned lizard	This species meets all 4 criteria for coverage status, although status and data availability are not well known. It is believed to have disappeared from approximately 35% of its range in central and	Because the probability of this species being listed is relatively low, we do not recommend	\$7,500 if species is covered by HCP/NCCP

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Ref. #	Issue Raised by Panel	Response	Recommendation	Cost Implications
		northern California. Continued habitat loss, fragmentation and disturbance may result in this species being listed within 30 years. However, the probability is relatively low.	including it as a covered species.	
<i>Return to normal table format</i>				
26	Assign lower priority to species that occur upslope or within protected areas	The proportion of a species' habitat that is currently protected will be taken into account when developing conservation strategies, not in assigning priority for coverage. Species that are mostly already protected may need few conservation measures to offset impacts. However, they still need to be included as covered species because they may be listed in the future and take may occur. (Species that are 100% protected are not proposed to be covered because there would be no impacts to these species.) If limits are placed on the number of covered species, then this can be considered as a factor.	No change	None
27	Prioritize species on the basis of the proportion of their range within the inventory area	See response to #26. The same rationale applies to the proportion of a species' range within the inventory area.	No change	None
28	Expand the section on species evaluation to address gradients of risk and acknowledge that formal risk assessments were not performed	We agree that formal, rigorous risk assessments are beyond the scope of this HCP/NCCP in determining covered species. However, we believe that the additional criteria suggested by the Panel were either taken into account or not relevant to determining covered species. In determining whether a special-status species would be affected by covered activities (the "impact" criteria), we did consider the species' range inside and outside protected areas. We also considered the likelihood of impact from future development (although not using models or a formalized procedure). As discussed in response #26, we do not believe that the proportion of a species' range inside or outside the inventory area should be a consideration in the selection of covered species unless limits are placed on the number of species that can be covered (it is, however, very relevant in developing conservation measures).	We will acknowledge in the admin. draft HCP/NCCP that we did not conduct a formal, rigorous risk assessment in selecting covered species.	None
29	Address rare species	We concur that rare species currently unknown from the inventory	Create new category of "no take"	None

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Ref. #	Issue Raised by Panel	Response	Recommendation	Cost Implications
	that may occur in the inventory area but have not been recorded or described	may be discovered or described as new taxa during the permit term. Because these species will be very rare, no take should be allowed. Therefore, they should not be included as covered species.	species in the Admin. Draft HCP/NCCP (see memo dated 6-28-02)	

Literature Cited

Archibold, O.W. 1995. Ecology of World Vegetation. Chapman and Hall, London, UK.

Huntley, B. J., and B. H. Walker. 1982. Introduction. Pp. 1-2 In: B. J. Huntley and B.H. Walker, eds. Ecology of Tropical Savannas. Springer, Berlin, Germany.

Saramiento, G. 1983. The savannas of tropical America. Pp. 245-288 In: F. Bourliere, ed. Ecosystems of the World Volume 13. Tropical Savannas. Elsevier, Amsterdam, Netherlands.



Memorandum

Date: July 8, 2002

To: East Contra Costa County HCP Association
c/o John Kopchik

cc:

From: David Zippin, Jones & Stokes

Subject: **"No Take" Species**

This memorandum describes our proposed approach to "no take" species, or those species for which the HCP/NCCP should not allow any take.

Background

The final take permits from the U.S. Fish and Wildlife Service (FWS) and the California Department of Fish and Game (DFG) will list the species for which "take" is authorized under the federal Endangered Species Act (ESA) and the California Endangered Species Act (CESA). The permits will allow some impacts to the species on the permits in exchange for implementation of the overall conservation strategy in the HCP/NCCP.

In our evaluation of special-status species that occur or may occur in the inventory area, several species were encountered that are extremely rare. This includes species that are presumed extinct (they could be rediscovered and would therefore be extremely rare). Questions have come up in the Scientific Advisory Panel and the HCPA Coordination Group as to how we would address these extremely rare species, or whether we would address them at all in the HCP/NCCP.

Extremely rare species cannot be listed as covered species in the HCP/NCCP because any take of the species would likely jeopardize their continued existence. The ESA prohibits FWS from issuing a permit for an HCP if the HCP would jeopardize the continued existence of a federally-listed species. In the analysis of project impacts for the EIR/EIS, we must consider the impacts of the agencies issuance of the take permits on all species, not just those covered by the HCP/NCCP. In this analysis, it must be clear to the agencies that the HCP/NCCP will not jeopardize the continued existence of any species that is currently listed or has the potential to be listed during the permit term.

Recommendation

To address concerns raised by the Science Panel and others, and to ensure that the HCP/NCCP meets regulatory requirements, we propose to add a new category of “no take species” to the HCP/NCCP. No take species would be included in the HCP/NCCP in a new section of Chapter 3 and described only in general terms. No species profiles would be developed for no take species. Avoidance measures would be developed for no take species and described in Chapter 6. Measures would be developed to ensure that covered projects and activities did not take any of these species within the inventory area.

This approach has benefits to the plan beyond permit processing and into implementation. Applicants wishing to participate in the HCP/NCCP would be able to see clearly that although take of many species is allowed, take of certain species is prohibited (take of these species would likely be prohibited in all circumstances, so this requirement would not be a deterrent for potential plan participants). To ensure compliance with the HCP/NCCP, applicants would therefore have to demonstrate through biological surveys that the no take species were absent from their property.

Cost Implications

There would be no cost implications to this modification of the HCP/NCCP. All changes to the document would be made within our existing budget.

No Take Species

Table 1 lists the 7 species that we propose to be included in the HCP/NCCP as no take species. Two of these species are currently covered species, the golden eagle and the diamond-petalled poppy. We propose to add the golden eagle to the no take list because this species is fully protected under the state Fish and Game Code, which does not allow for take (though “take” is defined more narrowly there than in the endangered species acts—for this reason we propose leaving golden eagle on the covered species list as well). The diamond-petalled poppy is so rare throughout its range that any populations found in the inventory area would have to be preserved (currently, no populations are known to occur in Contra Costa County). Keep in mind that the species profiles developed for these species were not wasted effort. In order to ensure no take of both species, we will need to develop conservation measures for the HCP/NCCP. The species profiles will be used to do this. In addition, there is a chance that the fully protected category will be eliminated or modified by new legislation before the HCP/NCCP is complete. If this category is eliminated, the Golden eagle can be moved back to the covered species list as originally planned.

Although unlikely, we may recommend moving other covered species to the no take list as we learn more about them. As with the covered species list, this list is preliminary and may change

as the project moves forward.

Other Species Recommended for Further Evaluation

The Science Panel also recommended that we more closely evaluate 5 species for inclusion in the covered species list: Bald eagle, Short-eared owl, Peregrine falcon, rayless ragwort, and largeleaf filaree. These evaluations will be presented in a separate memo.

Table 1. Proposed No Take Species.

Common Name	Scientific name	Status ¹		Explanation
		State	Federal	
Plants				
Large-flowered fiddleneck	<i>Amsinckia grandiflora</i>	SE	FE	No natural populations occur in the inventory area ; if one were discovered, it would be highly significant and should be preserved.
Alkali milkvetch	<i>Astragalus tener</i> ssp. <i>tener</i>	1B	–	Thought to be extirpated from Contra Costa County; suitable habitat may be present in the inventory area; if any populations are found, they would have to be preserved.
Mount Diablo buckwheat	<i>Eriogonum truncatum</i>	1A	–	Presumed extinct; if any populations were discovered in the inventory area, they would have to be preserved.
Diamond-petaled poppy	<i>Eschscholzia rhombipetala</i>	1B	–	Known from only 2 populations in the world; not seen in the inventory area since 1889. Any populations found in the inventory area would be highly significant.
Contra Costa goldfields	<i>Lasthenia conjugens</i>	1B	FE	All known populations in inventory area have been extirpated; if new populations are discovered, they would have to be preserved.
Caper-fruited tropidocarpum	<i>Tropidocarpum capparideum</i>	1A	–	Presumed extinct; historic occurrences in the inventory area; if discovered, population would have to be preserved
Birds				
Golden eagle*	<i>Aquila chrysaetos</i>	FP	BGPA	No take is allowed because species is fully protected

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¹**Status:**

Federal

FE Federally Endangered
FT Federally Threatened
FSC Federal Special Concern Species
BGPA Bald Eagle and Golden Eagle Protection Act

State

SE State Listed as Endangered
ST State Listed as Threatened
CSC California Special Concern Species
SR State Rare (plants)
FP Fully Protected

California Native Plant Society

1A Presumed Extinct
1B Rare or Endangered in California and Elsewhere

* Golden eagle is recommended as both a No-Take species and a Covered Species, because the definition of "take" in the Fish and Game Code differs from the definitions in the state and federal endangered species acts.



Memorandum

Date: July 10, 2002

To: East Contra Costa County HCPA c/o John Kopchik

cc:

From: Ed West and David Zippin, Jones & Stokes

Subject: **ECCC HCP/NCCP Covered Species Distribution Models**

This memorandum summarizes our proposed methodology for developing models of the distribution of most covered species in the East Contra Costa County HCP/NCCP. We also present preliminary results of four example models to illustrate their function.

Background

Habitat conservation plans (HCPs) are required to estimate the level of take of all covered species. In small HCPs, this is typically done by estimating the maximum number of individuals that could be harmed, harassed, or killed by covered activities. In larger HCPs, this method is usually not possible because of the uncertainty in the location and extent of covered activities, a lack of data on the population status of covered species (i.e., population sizes and locations), or a combination of both. An alternative method to quantifying take is to determine the amount of habitat for each covered species that will be removed. This method is widely used in regional HCPs and is an acceptable alternative to the U.S. Fish and Wildlife Service (FWS) to estimating the number of individuals or populations taken. This is the method that will be employed in the East Contra Costa County HCP/NCCP.

Section 2820a of the California Natural Community Conservation Planning Act of 2001 requires applicants for incidental take permits provide natural community conservation plans that will:

- contribute to the recovery of listed covered species;
- support sustainable populations of covered species;
- provide range of environmental gradients and habitat diversity to support shifting species distributions; and
- sustain movement of species among reserves.

The covered species distribution models will also be used to satisfy the requirements of the NCCP Act.

Purpose of the Models

The purpose of these models is to identify areas within the inventory area where covered species occur, or could occur based on known habitat requirements. We will use these models to quantify impacts from covered activities on covered species. Impact on covered species will be quantified by intersecting the GIS-based map of assumed development in the inventory area with each model of covered species distribution. The models will also be used to develop conservation measures for each covered species. We will evaluate alternative reserve and restoration designs against each covered species model to ensure that regulatory standards and biological goals for each species are met and that conservation for each is maximized. This information will also be used to frame alternative Conservation Strategies. These strategies will be evaluated on the basis of costs, conservation, and other factors to arrive at a preferred Conservation Strategy which becomes a cornerstone of the HCP/NCCP.

Model Structure and Development Methodology

The species models being developed for the ECCC HCP/NCCP are designed to accurately and effectively define key habitat characteristics of each species, be repeatable and scientifically defensible while remaining as simple as possible. The models are based on identification of land cover types that provide important habitat for these species (See the Administrative Draft of Chapter 3 of the HCP/NCCP for details of the land cover mapping). For each species, land cover types were identified as suitable habitat based on known or presumed habitat requirements and use patterns of each species. When supported by data, the models were refined by physical parameters such as elevation limits. In some cases, perimeter zones were used to designate habitat use a certain distance from a land cover type. For example, red-legged frogs use upland habitat for aestivation (summer hibernation) and dispersal, but the probability of use decreases with increasing distance from suitable breeding sites (e.g., ponds, streams). For wildlife, land cover types considered to be suitable habitat were classified by habitat use. Land cover types used for breeding were designated as core use areas. Other important habitats that may or may not include the core areas include foraging areas, aestivation areas, and migration/movement/dispersal corridors.

Determinations of suitable land cover types and additional physical parameters were based on available data from survey reports, environmental documents, and peer-reviewed scientific literature. These data are summarized in the detailed biological profiles for each species in the HCP/NCCP. When data were inconclusive or contradictory, we assumed conservative values to estimate suitable habitat. Documented occurrences of covered species within the inventory area, including those available from the California Natural Diversity Database, Biodiversity data (a compilation of sightings of published studies and environmental documents) and occurrence records from the East Bay Regional Park District's (EBRPD) biological database, were (or will be—we are still integrating some of the species sightings data sets) used to validate and refine

the models. Individual occurrences that fall outside a model's predicted habitat distribution are evaluated separately to determine if they are in areas detectable by the resolution capacity of the model and are representative of the species habitat, or are anomalous for some reason.

Model Limitations

The precision of the species distribution models is limited to the 10-acre/1 acre minimum mapping units used to map land cover types (land cover types smaller than 10 acres were not mapped, except rock outcrops, riparian scrub/woodland, wetlands, and wind turbines, which were mapped to 1 acre; ponds were mapped wherever they could be distinguished on the air photos, regardless of size). Areas of suitable habitat smaller than the mapping thresholds were not mapped and therefore could not be incorporated into the models. This constraint limited the degree of resolution of some habitat features potentially important to some species. For example, amphibians such as the California red-legged frog and the California tiger salamander require small ponds or other aquatic features for breeding. Suitable breeding habitat was therefore underestimated within the inventory area. The species distribution models are limited to distinguishing habitat uses based on key life history requirements such as breeding, foraging, or dispersal. These uses are then tied to land-cover types. The data do not allow for further distinctions of habitat quality on a regional scale. For example, California red-legged frogs disperse from breeding sites as their ponds or streams dry out during the summer. The movement corridors used by individuals may follow moisture gradients and associated wetland and/or swale vegetation. Including these features in our models was not possible. Accordingly, we used conservative estimates of movement/dispersal habitat requirements. This procedure will overestimate the actual extent of suitable or required habitat for this species, but is consistent with current conservation planning practices when data are limited (Noss et al. 1997).

Because of these limitations, models could not be developed for all covered species. For some species, particularly the vernal pool invertebrates and some plants with highly restricted distribution and habitat requirements, available location data and the resolution capacity of the modeling procedure were insufficient to precisely identify potential habitat. The wetland habitat areas used by the invertebrate species were of such small size or specific physical condition (e.g., pond duration, depth) that they could not be mapped from aerial photography. By assuming they occur in mapped ponds and other aquatic sites, we would have greatly over-represented their true distribution. Similar limitations were characteristic of several plant species. For this reason, models for these species will not be developed for the HCP/NCCP. Instead, take of these species will likely be estimated based on known occurrences (i.e., populations) and a take "ceiling" deemed reasonable based on knowledge of the inventory area. Take of these species will need to be verified during site-specific surveys during HCP/NCCP implementation.

Representative models, assumptions, and results

Models for the Alameda whipsnake, California red-legged frog, Swainson's hawk and burrowing owl are presented here to illustrate the methodology, assumptions and results of the modeling process. Each model is based on a set of assumptions that define the mapping parameters used to identify the land cover areas important to each species. Rationales for the assumptions are also provided. The model results are presented in Figures 1-4 and described below.

Alameda whipsnake

Model Assumptions

1. All chaparral and scrub land cover within the inventory area was considered core habitat for Alameda whipsnake. In addition, a perimeter zone of all adjacent grassland, oak savanna and oak woodland within 500 feet of the scrub areas was also considered core habitat for this species. Core habitat for Alameda whipsnake is defined as home range areas in which individuals find shelter, breed, hibernate, and spend the majority of their time foraging.
2. All areas of annual grassland, oak woodland, oak savannah, riparian woodland/scrub and stream channels within a 1-mile radius of core Alameda whipsnake habitat were considered suitable movement habitat for this species.

Rationale

Core Habitat: Direct observations of Alameda whipsnakes and radio telemetry data on their movement patterns have shown that individuals tend to establish home ranges primarily within coastal scrub habitat, but also frequently move into adjacent grassland, oak savanna and occasionally oak woodland (Jennings 1983, Stebbins 1985, Swaim 1994). Most telemetry locations are within 170 feet of scrub habitat, but individuals have been tracked out to 500 feet (Swaim 1994). Whipsnakes can remain in grasslands for periods ranging from a few hours to several weeks. Male whipsnakes use grasslands primarily during the mating season in spring; females use these areas mostly after mating, possibly in their search for suitable egg-laying sites (Swaim 1994). Rock outcrops are also important habitat to whipsnakes in providing sites for efficient thermoregulation, shelter retreats, and foraging. Within the core areas, Alameda whipsnakes most commonly occur on east, south, southeast and southwest facing slopes (Swaim 1994), but may also use north facing slopes in more open stands of scrub habitat (McGinnis 1990, Swaim, pers. comm. in USFWS 2000a).

Movement habitat and corridors: Adult male whipsnakes commonly move long distances away from their core areas during the breeding season (Swaim 2000). Also juveniles and hatchlings disperse annually away from their natal core areas in search of new habitats. A recent

review of Alameda whipsnake locality data revealed that numerous Alameda whipsnakes have been observed at distances significantly greater than 500 feet from scrub habitat (Swaim 2000). These distances range from 0.1 mile to 4 miles. The 4 mile records appears to be anomalous; the next longest distance being 1.5 miles and all other records (9) were less than 1 mile (mean for the 10 values = 0.46 miles).

Because the data on these whipsnake movements is limited (Swaim 2000), for the purposes of this model we used a conservative estimate of 1.0 mile to define the potential dispersal/movement distance of whipsnakes away from core coastal scrub habitat. Within this radius, however, it is unknown what pathways the snakes may take. Rock outcrops probably facilitate these long distance movements in these areas, but are apparently not essential (Swaim 1994, 2000). Individual whipsnakes have been located over 3,000 feet from scrub in areas where no significant rock outcrops were present between the closet patch of scrub and the location where the snake was found. Stream channels also are probably used as movement corridors between core areas (Swaim 2000). For these reasons we included all grassland and oak savanna areas within a 1-mile radius of all coastal scrub area in the inventory area as suitable Alameda whipsnake movement habitat. Furthermore, we considered all stream channels in and networked with channels within this 1-mile radius as potential dispersal/movement corridors for this species.

Results

Figure 1 shows the modeled potential habitat of the Alameda whipsnake within the ECCC HCP/NCCP inventory area. The habitat includes the eastern slopes of Mt. Diablo and much of the surrounding foothills in the western and southwestern portions of the inventory area. The documented occurrences of Alameda whipsnakes in this area correspond well to locations within core areas or in adjacent movement habitat and corridors. Two recently documented occurrences are located in grassland habitat north and northeast of Los Vaqueros Reservoir approximately 4 miles from the nearest potential chaparral/scrub habitat. The apparent anomalous nature of these points and rationale for not including them in the model is discussed above. A small area southeast of Mt. Diablo is not shown as suitable habitat for the Alameda whipsnake. This area is likely suitable movement habitat because of the proximity (less than 1 mile) of chaparral and scrub habitat outside the inventory that was not mapped.

The minimum home range size of adult male Alameda whipsnakes in coastal scrub habitat is approximately 5 acres. Habitat patches of this size within the inventory area could not be mapped due to the 10 acre minimum habitat resolution capacity of the model. Also rock outcrop areas, important to the Alameda whipsnake within core areas and movement corridors, were not mapped if they were less than one acre in size. Both of these features play important roles in the dispersal and movement of whipsnakes and could possibly provide suitable habitat for the whipsnakes closer to the outlier locations. If this is correct, or additional information reveals that these long distances are within the normal range of movement of Alameda whipsnakes, the

boundary of suitable movement habitat should be adjusted to include these areas. However, despite this scale limitation of the model, the relative abundance and spatial distribution of coastal scrub habitat patches larger than 10 acres within the inventory area was sufficient to allow reasonable identification of important core areas and movement corridors for this species. The model provides reasonable conservative estimates for both core habitat and movement corridors/dispersal habitat.

California red-legged frog

Model Assumptions

1. Ponds and streams in riparian woodland/scrub, wetland or seasonal wetland, annual grassland, alkali grassland, oak savanna, oak woodland, non-urban ruderal (ruderal land cover areas outside existing urban land cover areas) and turf land-cover types were considered potential breeding habitat for California red-legged frog.
2. All non-urban non-aquatic land cover types within 1 mile of potential breeding sites were considered potential migration and aestivation habitat for this species.

Rationale

Breeding habitat: Breeding sites used by California red-legged frogs include a variety of aquatic habitats (Stebbins 1985, Hayes and Jennings 1988, USFWS 2000b). Larvae, tadpoles and metamorphs use streams, deep pools, backwaters within streams and creeks, ponds, and marshes. Breeding adults are commonly found in deep (more than 2 feet), still or slow-moving water with dense, shrubby riparian or emergent vegetation (Hayes and Jennings 1988). Adult frogs have also been observed in shallow sections of streams that are not shrouded by riparian vegetation. Generally, streams with high flows and cold temperatures in spring are unsuitable for eggs and tadpoles. Within the ECCC HCP/NCCP inventory area stock ponds are frequently used as breeding sites by this species if the ponds are managed to provide suitable hydroperiod, pond structure, vegetative cover, and control of nonnative predators. All existing ponds and streams within the inventory area were, therefore, considered potential suitable breeding habitats for California red-legged frogs.

Migration and aestivation habitat: During dry weather, California red-legged frogs are seldom found far from water. However, as ponds dry out these frogs disperse from their breeding sites to other areas with water or to temporary shelter or aestivation sites. This latter habitat may include small mammal burrows, incised stream channels, shelter under boulders, rocks, logs, leaf litter, agricultural drains, watering troughs, abandoned sheds or unused farm equipment (Jennings and Hayes 1994, USFWS 2000b). Movements of up to 1 mile from breeding sites to aestivation sites are apparently typical (Stebbins 2002), although some individual frogs have been found up to 2 miles away (USFWS 2000b). These dispersal and migration movements are

generally straight-line, point-to-point migrations rather than following specific habitat corridors (USFWS 2000b, Stebbins 2002). They may be along long-established historic migratory pathways that provide specific sensory cues that guide the seasonal movement of the frogs (Stebbins 2002). Dispersal distances are believed to depend on the availability of suitable habitat and prevailing environmental conditions. However, because the actual movement patterns of California red-legged frogs in these habitats is generally not known, for this model we conservatively estimated that all non-urban land cover areas within a radius of 1 mile from all potential breeding sites were potential migration and/or aestivation habitats for California red-legged frogs.

Results

Figure 2 shows the modeled potential habitat of the California red-legged frog within the ECCC HCP/NCCP inventory area. The habitat includes approximately two-thirds of the inventory area, and is primarily located along the hilly portions of the western side of this area. All documented occurrence locations fit well within the boundaries of the model. A number of occurrence records shown within the boundary of Los Vaqueros reservoir are historic, having been recorded before the reservoir was created.

The large size of the habitat is due to the high number of ponds that provide potential breeding habitat and the potential dispersal distance of this species. Because the actual movement patterns of the frogs away from breeding sites is not known, but is believed to often be line-of-sight, we used conservative estimates of the movement/dispersal habitat requirements based on known distances of movement of individuals provided in available reports. We then included all potentially suitable habitats within a radius based on the average distance moved by the frogs and classified these areas as suitable movement habitat for the species.

Swainson's hawk

Model Assumptions

1. All cropland, pasture, annual grassland, alkali grassland, wind turbine, and seasonal wetland land-cover types in the inventory area within 10 miles of existing breeding sites or potential breeding habitat were considered potential Swainson's hawk foraging habitat. Potential breeding habitat included all riparian woodland scrub and non-native woodland land cover types within the inventory area.

Note: the model for Swainson's Hawk is a very preliminary draft. We are currently checking for additional sightings information, for information on possible elevation limitations, and for additional information on land cover suitable for nesting. Since the purpose of this memo is to

explain process and not to discuss outcomes of preliminary analysis, we have included this early draft model because we wanted to show how the approach differs for a wide-ranging species like Swainson Hawk.

Rationale

Foraging Habitat: Historically, Swainson's hawks are believed to have foraged in upland and seasonally flooded [wetland] perennial grasslands (Woodbridge 1998). In the Central Valley, Swainson's hawks now forage primarily in low-growing crop areas and perennial grasslands (Estep 1989, pers. comm. 2002). Preferred foraging habitats include alfalfa, fallow fields, beet, tomato, and other low-growing row or field crops, dry-land and irrigated pasture, rice land during the non-flooded period, and cereal grain crops (Estep 1989). Individual birds or nesting pairs may use over 15,000 acres of habitat or range up to 18 miles from the nest in search of prey (Estep 1989, Babcock 1993). The California Department of Fish and Game considers a 10-mile flight distance between active nest sites and suitable foraging habitats as a standard for direct impact analysis. This distance was used to identify all potential foraging Swainson's hawk foraging habitat within the ECCC HCP/NCCP inventory area.

Breeding Habitat: In California, Swainson's hawks typically nest at the edge of narrow bands of riparian vegetation, in isolated oak woodland and in lone trees, roadside trees, or farmyard trees, as well as in adjacent urban residential areas (Estep 1989; England et al. 1995, 1997). The 10-acre resolution limitation of the land cover mapping allows for identification of only the largest riparian woodland/non-native woodland land cover areas within the implementation area.

Results

Figure 3 shows the modeled potential habitat of the Swainson's hawk within the ECCC HCP/NCCP inventory area. The habitat includes extensive areas of grassland and row-crop and pasture land cover within the inventory areas. All of these areas are within the 10-mile foraging range of the species from potential nesting habitat. Only one occurrence record was available for this species within the inventory area. This record was located within potential breeding habitat identified by the model

Numerous other sites within agricultural and urban areas may also provide suitable breeding habitat for this species in the form of small woodlands and isolated trees. However, these areas could not be identified in this model because these small-scale features were not mapped.

Western burrowing owl

Model Assumptions

1. All annual grassland, alkali grassland, wind turbine, seasonal wetland, ruderal and turf land cover types within the inventory area were considered suitable breeding and foraging habitat for western burrowing owl.

Note: the model for Western burrowing owl is a very preliminary draft. We are currently checking for additional sightings information that will help us evaluate the model. Since the purpose of this memo is to explain process and not to discuss outcomes of preliminary analysis, we have included this early draft model because we wanted to show how the approach differs for a species with much different habitat requirements.

Rationale:

Western burrowing owls typically occur in dry, open, shortgrass, treeless plains often associated with burrowing mammals (Haug et al. 1993). Golf courses, cemeteries, road allowances within cities, levees, and ruderal borders around agricultural fields, airports, and vacant lots in residential areas are also used for both breeding and foraging. Within the ECCC HCP/NCCP inventory area these habitats are represented by the annual grassland, alkali grassland, wind turbine, seasonal wetland, ruderal and turf land cover types.

Results

Figure 4 shows the modeled potential habitat of the western burrowing owl within the ECCC HCP/NCCP inventory area. The habitat includes large areas of grassland and ruderal habitat throughout the inventory area, but most of the available occurrence records are not included within the model boundaries. It is most likely that these records are in suitable habitat areas, but these areas are smaller than the 10-acre resolution of the model. Areas smaller than 10 acres, including agricultural levees, perimeter farmland ruderal areas, and small ruderal patches associated in residential areas and around airports, were not mapped and are therefore potentially under-represented. However, the model may compensate for this potential bias by conservatively estimating the amount of grassland and ruderal habitat available to burrowing owls for breeding and foraging. It is unknown why no records occur in the northwestern portion of the inventory, despite abundant modeled habitat. Western burrowing owl may be undersurveyed or underreported in that area. In addition, actual densities of owls may be low because of historic or current rodent control programs that reduce their prey base.

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